Complete Summary

GUIDELINE TITLE

Clinical guideline on pediatric restorative dentistry.

BIBLIOGRAPHIC SOURCE(S)

American Academy of Pediatric Dentistry. Clinical guideline on pediatric restorative dentistry. Chicago (IL): American Academy of Pediatric Dentistry; 2004. 9 p. [129 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Damage from dental caries

GUIDELINE CATEGORY

Treatment

CLINICAL SPECIALTY

Dentistry
Pediatrics

INTENDED USERS

Dentists

GUIDELINE OBJECTIVE(S)

To assist the practitioner in the restorative care of infants, children, and adolescents

TARGET POPULATION

Infants, children, and adolescents with tooth damage from dental caries who require restoration

INTERVENTIONS AND PRACTICES CONSIDERED

1. Use of dentin/enamel adhesives
2. Use of pit and fissure sealants
3. Use of glass ionomer cements
4. Use of highly-filled resin-based composites
5. Amalgam restorations
6. Stainless steel crown (SSC) restorations
7. Labial resin restoration
8. Porcelain veneer restoration
9. Full-cast metal crown restorations
10. Porcelain-fused-to-metal crown restorations
11. Fixed prosthetic restorations
12. Removable prosthetic appliances

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

MEDLINE search

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The oral health policies and clinical guidelines of the American Academy of Pediatric Dentistry (AAPD) are developed under the direction of the Board of Trustees, utilizing the resources and expertise of its membership operating through the Council on Clinical Affairs (CCA).

Proposals to develop or modify policies and guidelines may originate from 4 sources:

1. the officers or trustees acting at any meeting of the Board of Trustees
2. a council, committee, or task force in its report to the Board of Trustees
3. any member of the AAPD acting through the Reference Committee hearing of the General Assembly at the Annual Session
4. officers, trustees, council and committee chairs, or other participants at the AAPD's Annual Strategic Planning Session

Regardless of the source, proposals are considered carefully, and those deemed sufficiently meritorious by a majority vote of the Board of Trustees are referred to the CCA for development or review/revision.

Once a charge (directive from the Board of Trustees) for development or review/revision of an oral health policy or clinical guideline is sent to the CCA, it is assigned to 1 or more members of the CCA for completion. CCA members are instructed to follow the specified format for a policy or guideline. All oral health policies and clinical guidelines are based on 2 sources of evidence: (1) the scientific literature; and (2) experts in the field. Members may call upon any expert as a consultant to the council to provide expert opinion. The Council on Scientific Affairs provides input as to the scientific validity of a policy or guideline.

The CCA meets on an interim basis (midwinter) to discuss proposed oral health policies and clinical guidelines. Each new or reviewed/revised policy and guideline is reviewed, discussed, and confirmed by the entire council.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Once developed by the Council on Clinical Affairs (CCA), the proposed policy or guideline is submitted for the consideration of the Board of Trustees. While the board may request revision, in which case it is returned to the council for modification, once accepted by majority vote of the board, it is referred for Reference Committee hearing at the upcoming Annual Session. At the Reference Committee hearing, the membership may provide comment or suggestion for alteration of the document before presentation to the General Assembly. The final document then is presented for ratification by a majority vote of the membership present and voting at the General Assembly. If accepted by the General Assembly, either as proposed or as amended by that body, the document then becomes the official American Academy of Pediatric Dentistry (AAPD) oral health policy or clinical guideline for publication in the AAPD's Reference Manual and on the AAPD's Web site.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Dentin/Enamel Adhesives

The dental literature supports the use of tooth bonding adhesives, when used according to the manufacturer's instruction unique for each product, as being effective in primary and permanent teeth in enhancing retention, minimizing microleakage, and reducing sensitivity. (Garcia-Godoy & Donly, 2002)

Pit and Fissure Sealants

1. Bonded resin sealants, placed by appropriately trained dental personnel, are safe, effective, and underused in preventing pit and fissure caries on at-risk surfaces. Effectiveness is increased with good technique and appropriate follow up and resealing as necessary.
2. Sealant benefit is increased by placement on surfaces judged to be at high risk or surfaces that already exhibit incipient carious lesions. Placing sealants over minimal enamel caries has been shown to be effective at inhibiting lesion

progression. Appropriate follow up care, as with all dental treatment, is recommended.
3. Presently, the best evaluation of risk is done by an experienced clinician using indicators of tooth morphology, clinical diagnostics, past caries history, past fluoride history, and present oral hygiene.
4. Caries risk, and therefore potential sealant benefit, may exist in any tooth with a pit or fissure, at any age, including primary teeth of children and permanent teeth of children and adults.
5. Sealant placement methods should include careful cleaning of the pits and fissures without removal of any appreciable enamel. Some circumstances may indicate use of a minimal enameloplasty technique.
6. A low-viscosity, hydrophilic material bonding layer as part of or under the actual sealant has been shown to enhance long-term retention and effectiveness.
7. Glass ionomer materials have been shown to be ineffective as pit and fissure sealants, but could be used as transitional sealants. (Attin et al., 2001)

Glass Ionomer Cements

Glass ionomers cements can be recommended as:

1. Luting cements
2. Cavity base and liner
3. Class I, II, III, and V restorations in primary teeth
4. Class III and V restorations in permanent teeth in high risk patients or teeth that cannot be isolated
5. Caries control:
    a. High-risk patients
    b. Restoration repair
    c. Alternative (atraumatic) restorative technique (ART) (Berg, 2002)

Resin-Based Composites

Indications

The dental literature supports the use of highly filled, resin-based composites in:

1. Small pit-and-fissure caries where conservative preventive resin restorations are indicated in both primary and permanent dentition
2. Occlusal surface caries extending into dentin
3. Class II restorations in primary teeth that do not extend beyond the proximal line angles
4. Class II restorations in permanent teeth that extend approximately one third to one half the buccolingual intercuspal width of the tooth
5. Class III, IV, V restorations in primary and permanent teeth
6. Strip crowns in the primary and permanent dentition

Contraindications

The dental literature recommends that resin-based composites not be used in the following situations:

1. Where a tooth cannot be isolated to obtain moisture control
2. In individuals needing large multiple surface restorations in the posterior primary dentition
3. In high-risk patients who have multiple caries and/or tooth demineralization and who exhibit poor oral hygiene and compliance with daily oral hygiene, and when maintenance is considered unlikely (Donly & Garcia-Godoy, 2002)

Amalgam Restorations

Dental amalgam can be recommended for:

1. Class I restorations in primary and permanent teeth
2. Two-surface class II restorations in primary molars where the preparation does not extend beyond the proximal line angles
3. Class II restorations in permanent molars and premolars
4. Class V restorations in primary and permanent posterior teeth (Fuks, 2002)

Stainless Steel Crown (SSC) Restoration

1. Children at high risk exhibiting anterior tooth caries and/or molar caries may be treated with SSCs to protect the remaining at-risk tooth surfaces.
2. Children with extensive decay, large lesions, or multiple-surface lesions in primary molars should be treated with SSCs.
3. Strong consideration should be given to the use of SSCs in children who require general anesthesia. (Seale, 2002)

Labial Resin or Porcelain Veneer Restoration

Veneers may be indicated for the restoration of anterior teeth with fractures, developmental defects, intrinsic discoloration, and/or other esthetic conditions. (Horn, 1983)

Full-Cast or Porcelain-Fused-to-Metal Crown Restoration

Full-cast metal crowns or porcelain-fused-to-metal crown restorations may be utilized for:

1. Teeth having developmental defects, extensive carious or traumatic loss of structure, or endodontic treatment
2. As an abutment for fixed prostheses
3. For restoration of single-tooth implants (Simonsen, Thompson, & Barrack, 1983; Creugers, van't Hof, & Vrijhoef, 1986; McLaughlin, 1984)

Fixed Prosthetic Restorations for Missing Teeth

Fixed prosthetic restorations to replace 1 or more missing teeth may be indicated to:

1. Establish esthetics
2. Maintain arch space or integrity in the developing dentition
3. Prevent or correct harmful habits

4. Improve function (Simonsen & Calamia, 1983, Thompson & Livaditis, 1982; Wood & Thompson, 1983)

Removable Prosthetic Appliances

Removable prosthetic appliances may be indicated in the primary, mixed, or permanent dentition when teeth are missing. Removable prosthetic appliances may be utilized to:

1. Maintain space
2. Obturate congenital or acquired defects
3. Establish esthetics or occlusal function
4. Facilitate infant speech development or feeding (Winstanley, 1984; Abadi, Kimmel, & Falace, 1982; Nayar, Latta, & Soni, 1981)

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

All oral health policies and clinical guidelines are based on 2 sources of evidence: (1) the scientific literature; and (2) experts in the field.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

The objectives of restorative treatment are to repair or limit the damage from dental caries, protect and preserve the tooth structure, re-establish adequate function, restore esthetics (where applicable), and provide ease in maintaining good oral hygiene. Pulp vitality should be maintained wherever possible.

POTENTIAL HARMS

Not stated

CONTRAINDICATIONS

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Resin-Based Composites

The dental literature recommends that resin-based composites not be used in the following situations:

1. Where a tooth cannot be isolated to obtain moisture control
2. In individuals needing large multiple surface restorations in the posterior primary dentition
3. In high-risk patients who have multiple caries and/or tooth demineralization and who exhibit poor oral hygiene and compliance with daily oral hygiene, and when maintenance is considered unlikely

QUALIFYING STATEMENTS

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As with all guidelines, it is expected that there will be exceptions to the recommendations based upon individual clinical findings.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Chart Documentation/Checklists/Forms
Resources

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

American Academy of Pediatric Dentistry. Clinical guideline on pediatric restorative dentistry. Chicago (IL): American Academy of Pediatric Dentistry; 2004. 9 p. [129 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2004

GUIDELINE DEVELOPER(S)

American Academy of Pediatric Dentistry - Professional Association

SOURCE(S) OF FUNDING

American Academy of Pediatric Dentistry

GUIDELINE COMMITTEE

Clinical Affairs Committee

Restorative Dentistry Subcommittee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Not stated

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available from the American Academy of Pediatric Dentistry Web site.

Print copies: Available from the American Academy of Pediatric Dentistry, 211 East Chicago Avenue, Suite 700, Chicago, Illinois 60611

AVAILABILITY OF COMPANION DOCUMENTS

Information about the American Academy of Pediatric Dentistry (AAPD) mission and guideline development process is available on the AAPD Web site.

The following implementation tools are available for download from the AAPD Web site:

- Dental growth and development chart
- American Academy of Pediatric Dentistry Caries-Risk Assessment Tool (CAT)

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on March 16, 2005. The information was verified by the guideline developer on April 18, 2005.

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